

REMARKS

Claims 12-36 were previously pending in the application. This Amendment amends claims 13 and 14, and adds new claim 37. No new matter is being added. Claims 12 and 15-36 remain unchanged. Claims 12 and 21 are independent.

The Rejection under 35 U.S.C. § 112, second paragraph

The Office Action rejects claims 13-16 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Office Action suggests amending claims 13 and 14 to replace "said activated phase" in lines 2 and 3, respectively, with - - said activation phase - - .

This Amendment amends the claims to particularly point out and distinctly claim the subject matter which applicant regards as the invention in accordance with the Examiner's helpful suggestions, thereby overcoming this rejection. Applicant respectfully requests withdrawal of this rejection.

The Claimed Invention

In conventional refrigeration devices, a storage compartment is cooled by blowing cooled and dried air into the storage compartment with the aid of a fan at the evaporator and extracting relatively warm moist air from the storage compartment into an evaporator chamber. The storage compartment is not only cooled but also de-humidified and the moisture is deposited on the evaporator. However, under some ambient conditions, stored foodstuffs may be dried out by the intensive de-humidification.

An exemplary embodiment of the claimed invention, as recited by, for example, independent claim 12, is directed to a no-frost refrigeration device comprising a control circuit which makes an average circulation power of said fan variable during an activation phase of said evaporator based on at least one air conditioning parameter.

An exemplary embodiment of the claimed invention, as recited by, for example, independent claim 21, is directed to a method for operating a refrigeration device

including a control circuit which makes an average circulation power of said fan variable during an activation phase of said evaporator, comprising the steps of a) estimating a moisture value in said storage compartment; b) selecting a circulating power for said fan as a function of said estimated moisture value; and c) operating said fan at said selected circulating power.

In this manner, the present invention provides a no-frost refrigeration device and an operating method for such a device which allows flexible adaptation to the climatic conditions in the environment of the refrigerator, thereby controlling de-humidification and reducing drying out of stored foodstuffs by the de-humidification.

The Rejection under 35 U.S.C. § 102

Claims 12 and 17-20 are rejected under 35 U.S.C. § 102(b) as being anticipated by the Trask reference (U.S. 2,549,547).

Applicant respectfully traverses this rejection.

Applicant respectfully submits that the Trask reference does not disclose the features of the claimed invention including an evaporator which is alternately activated and deactivated located in a chamber separated from said storage compartment, as recited by independent claim 12.

Instead, the Trask reference very clearly shows the evaporator inside the storage compartment, not in a chamber separated from said storage compartment, as claimed.

A claim is anticipated *only* if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. [...] The identical invention must be shown in as complete detail as is contained in the ... claim." M.P.E.P. § 2131; emphasis added.

In this case, the identical invention clearly is not disclosed, either expressly or inherently, in the Trask reference. Hence, the Trask reference very clearly does not anticipate independent claim 12. Claims 17-20 are patentable by virtue of their dependency from claim 12, as well as for the additional features recited therein.

Applicant respectfully requests withdrawal of this rejection.

The Rejections under 35 U.S.C. § 103

Claims 13-16 and 19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Trask reference in view of the Shima et al. reference (U.S. 5,931,011). Claim 19 is rejected under 35 U.S.C. § 103(a) as being unpatentable over the Trask reference in view of the Baker reference (U.S. Patent No. 4,315,413). Claims 21-24 and 26-34 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Trask reference in view of the Kelly et al. reference (U.S. 6,508,408). Claim 25 is rejected under 35 U.S.C. § 103(a) as being unpatentable over the Trask reference, the Kelly et al. reference, and the Shima et al. reference. Claims 35 and 36 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Trask reference in view of the Pesko reference (U.S. Patent No. 6,290,140).

Applicant respectfully traverses these rejections.

The Rejection over the Trask reference and the Shima et al. reference

Claims 13-16 and 19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Trask reference in view of the Shima et al. reference.

Applicant respectfully traverses this rejection.

Claims 13-16 and 19 are patentable by virtue of their dependency from claim 12, as well as for the additional features recited therein.

The Shima et al. reference does not remedy the deficiencies of the Trask reference, with respect to claim 12. Similar to the Trask reference, the Shima et al reference teaches a compressor 13 inside the storage compartment, not in a chamber separated from said storage compartment, as recited in claim 12.

Furthermore, the Trask reference and the Shima et al. reference do not disclose or suggest all of the features of claims 13-16 and 19. Moreover, the Office Action fails to establish how the references disclose or suggest all of the features of these claims.

Claim 13 recites that said fan can be switched off temporarily during said activation phase of said evaporator.

Claim 14 recites that said control circuit controlling the operation of said evaporator and said fan set up to intermittently operate said fan during said activation phase of said evaporator.

Contrary to the assertions in the Office Action, FIG. 15 of the Shima et al. reference does not disclose that the evaporator 13 is in an activation phase when the cabinet fan 18 is intermittently operated. In FIG. 15, the fan 18 clearly only is operated at maximum rotation speed when the freezing cycle system is activated. See, e.g., col. 13, lines 36-40; see also FIG. 15 at 174b. The fan 18 only is operated at a decreased rotation speed when the freezing cycle is *deactivated*.

Hence, the Shima et al. reference does not disclose that the fan can be switched off temporarily during said activation phase of said evaporator, as recited in claim 13. Rather, as shown in FIG. 15, the fan 18 clearly only is operated at maximum rotation speed when the freezing cycle system is activated.

The Shima et al. reference also does not disclose that said control circuit controlling the operation of said evaporator and said fan set up to intermittently operate said fan during said activated phase of said evaporator, as recited in claim 14. Rather, the fan 18 clearly only is operated at maximum rotation speed when the freezing cycle system is activated, and at best, only is operated intermittently when the freezing cycle is *deactivated*.

Indeed, as clearly shown for example in FIGS. 2, 3, and 15, and described throughout the Shima et al. reference, neither the compressor 14 nor the condenser 15 is in an activation phase when the cabinet fan 18 is intermittently operated. Instead, both the compressor 14 and the condenser 15 are deactivated while the cabinet fan 18 is intermittently operated. See, e.g., col. 7, lines 1-4; col. 13, lines 36-40; see also FIG. 15 at 174b; see also claims at col. 13, line 65 to col. 16, line 61.

As shown in Figure 2, the compressor 14 and the condenser 15 are part of the loop that includes the evaporator 13. Since the driving circuit 22 is in communication only with the compressor 14, it appears that the evaporator 13 also would be deactivated when the cabinet fan 18 is intermittently operated, as shown in Figure 3.

For these reasons, the Shim et al reference does not remedy the deficiencies of the Trask reference, and therefore, the features of the claims are not rendered obvious from the alleged combination of references.

Applicant respectfully requests withdrawal of this rejection.

The Rejection over the Trask reference in view of the Baker reference

Claim 19 is rejected under 35 U.S.C. § 103(a) as being unpatentable over the Trask reference in view of the Baker reference.

Applicant respectfully traverses this rejection.

Claim 19 is patentable by virtue of its dependency from claim 12, as well as for the additional features recited therein.

The Baker reference does not remedy the deficiencies of the Trask reference, and indeed, one of ordinary skill in the art would not have had an apparent reason to modify the Trask reference to include the speed controller of the Baker reference.

The Baker reference is directed to a room air conditioning unit that has buttons for setting the speed of the air coming from the air conditioning unit to a speed that is comfortable for a person in the room. The speed control taught by the Baker reference has absolutely nothing to do with controlling the speed of a fan inside a no-frost refrigeration device.

Indeed, the stated rationale of “selecting a particular speed related to the level of comfort” has nothing to do with a no-frost refrigeration device since a person would not be inside the no-frost refrigeration device, and therefore, would not be concerned with a level of comfort inside the no-frost refrigeration device.

For these reasons, the Baker reference does not remedy the deficiencies of the Trask reference, and therefore, the features of claim 19 are not rendered obvious from the alleged combination of references.

Moreover, Applicant respectfully submits that the Baker reference is non-analogous art to the present invention. To qualify as analogous art, a reference must either be (1) within the field of Applicant’s endeavor, or if not, (2) the subject matter

logically would have commended itself to an inventor's attention in considering his or her invention as a whole. See M.P.E.P. § 2141.01(a)(I) citing *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1397 (2007).

Applicant respectfully submits that the Baker reference clearly is not within the field of Applicant's endeavor. In the present instance, the field of Applicant's endeavor is the field of home appliances and, more particularly, no-frost refrigeration devices for home appliances. In stark contrast, the Baker reference is within the completely different and unrelated field of room air conditioning systems. The field of endeavor of room air conditioners clearly is different from the field of endeavor of no-frost refrigerators.

As set forth above, a reference that is not within the field of Applicant's endeavor may qualify as analogous art if the subject matter logically would have commended itself to an inventor's attention in considering his or her invention as a whole. See M.P.E.P. § 2141.01(a)(I) citing *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1397 (2007).

In the present instance, the subject matter of the Baker reference logically would *not* have commended itself to an inventor's attention in considering his or her invention as a whole. As explained above, a person would not be inside the no-frost refrigeration device, and therefore, would not be concerned with a level of comfort inside the no-frost refrigeration device.

For at least these reasons, the subject matter of the Baker reference logically would *not* have commended itself to an inventor's attention in considering his or her invention as a whole, and therefore, the Baker reference does not qualify as analogous art.

Applicant respectfully requests withdrawal of this rejection.

The Rejection over the Trask reference and the Kelly et al. reference

Claims 21-24 and 26-34 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Trask reference in view of the Kelly et al. reference.

Applicant respectfully submits that one of ordinary skill in the art would not have modified the Trask reference in view of the Kelly et al. reference as alleged by the Office Action. Indeed, the Examiner may not rely upon the Kelly et al. reference under 35 U.S.C. § 103 because the Kelly et al. reference is non-analogous art. To qualify as analogous art, a reference must either be (1) within the field of Applicant's endeavor, or if not, (2) the subject matter logically would have commended itself to an inventor's attention in considering his or her invention as a whole. See M.P.E.P. § 2141.01(a)(I) citing *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1397 (2007).

Applicant respectfully submits that the Kelly et al. reference clearly is not within the field of Applicant's endeavor. In the present instance, the field of Applicant's endeavor is the field of home appliances and, more particularly, no-frost refrigeration devices for home appliances, NOT simply any climate control system. In stark contrast, the Kelly et al. reference is within the completely different and unrelated field of windglass fog prevention methods for a vehicle climate control system. The field of endeavor of windglass fog prevention methods for a vehicle climate control system clearly is different from the field of endeavor of no-frost refrigerators. Applicant respectfully submits that one of ordinary skill in the art would consider the field of home appliances and, more particularly, no-frost refrigeration devices for home appliances, to be in a completely different field of endeavor than climate control systems for preventing windglass fogging in automobiles.

For at least the foregoing reasons, the Kelly et al. reference clearly is not within the field of Applicant's endeavor. As set forth above, a reference that is not within the field of Applicant's endeavor may qualify as analogous art if the subject matter logically would have commended itself to an inventor's attention in considering his or her invention as a whole. See M.P.E.P. § 2141.01(a)(I) citing *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1397 (2007).

In the present instance, the subject matter of the Kelly et al. reference logically would *not* have commended itself to an inventor's attention in considering his or her invention as a whole. Properly considered as a whole, the present invention is directed to

a no-frost refrigerator and method of controlling a no-frost refrigerator that controls de-humidification in the no-frost refrigeration device and reduces drying out of stored foodstuffs by the de-humidification. In stark contrast, the Kelly et al. reference very clearly is concerned with the completely unrelated problem of preventing fogging of the windglass of a vehicle.

The Kelly et al reference discloses a climate control system 10 for a vehicle that, inter alia, **increases** the blower motor speed of the blower motor 43 when the humidity in the vehicle **increases** in order to increase the flow of air to the defrost outlet 68 and onto the windglass 98 of the vehicle. Particularly, the Kelly et al reference discloses that **increasing** the blower motor speed control signal offset (BL_OFFSET) **increases** the commanded speed of the blower motor 43. The control system 10 also may **increase** the percentage of *outside air* admitted into the air mixture in the plenum portion 62 for supplying to the defrost outlet 68, panel outlet 70, and heater outlet 72, and/or turn on the rear or side window defoggers 120. See, e.g., the Kelly et al reference at col. 2, line 46 to col. 3, line 4; and col. 4, lines 18-24, 52-56, and 65-67.

When properly considered as a whole, the subject matter of increasing the blower motor speed to defog the windglass of a vehicle logically would *not* have commended itself to an inventor's attention in considering, as a whole, ways to control de-humidification in a no-frost refrigeration device and reduce drying out of stored foodstuffs by the de-humidification. Moreover, the vehicle climate control system for reducing or preventing fogging of the windglass of the vehicle of the Kelly et al. reference does not address any need or problem known in the field of no-frost refrigerators, and indeed, clearly would not have commended itself to the attention of the ordinarily skilled artisan looking to solve problems with controlling de-humidification in a no-frost refrigeration device and reducing drying out of stored foodstuffs by the de-humidification. Indeed, the Kelly et al. reference operates in a completely different manner from the present invention, and hence, teaches away from the claimed invention.

As shown in Figures 2 and 3 of the present invention, if the moisture value (e.g., humidity) **increases** (for example, when the door of the refrigeration device is opened),

then the present invention **decreases** the circulation power of the fan to reduce the heat flow between the chamber and the storage compartment, thereby intensifying the cooling of the evaporator, which causes more intensive drying of the air flowing past the evaporator. On the other hand, if the moisture value (e.g., humidity) **decreases**, then the present invention **increases** the circulation power of the fan to increase the heat flow between the chamber and the storage compartment, thereby reducing the cooling of the evaporator, which in turn reduces the drying of the air flowing past the evaporator. In this manner, the present invention controls de-humidification in a no-frost refrigeration device and reduces drying out of stored foodstuffs by the de-humidification. See, e.g., page 2, lines 1-12; page 3, lines 1-9; and page 6, lines 1-9.

In stark contrast, the Kelly et al. reference is concerned with preventing fogging of the windglass of the vehicle. The Kelly et al reference **increases** the blower motor speed when the humidity in the vehicle **increases** in order to increase the flow of air to the defrost outlet and/or **increases** the percentage of outside air admitted into the air mixture in the plenum portion 62 for supplying to the defrost outlet 68, panel outlet 70, and heater outlet 72.

Clearly, if the teachings of the Kelly et al reference were applied to a no-frost refrigerator, the increase in the speed of the blower motor 43 would reduce the cooling of the evaporator, which in turn would reduce the drying of the air flowing past the evaporator. Hence, the Kelly et al reference would not provide de-humidification when applied to a refrigeration device, as opposed to a windglass fog prevention system, and clearly would not have commended itself to the attention of the ordinarily skilled artisan looking to solve problems with controlling de-humidification in a no-frost refrigeration device and reducing drying out of stored foodstuffs by the de-humidification.

Moreover, if the teachings of the Kelly et al reference were applied to a no-frost refrigerator, the increase in outside air provided by the blower motor 43 would only serve to increase the moisture value of the air in the storage compartment. Hence, the Kelly et al. reference, when properly considered as a whole, clearly would not have commended itself to the attention of the ordinarily skilled artisan looking to solve problems with

controlling de-humidification in a no-frost refrigeration device and reducing drying out of stored foodstuffs by the de-humidification.

For at least these reasons, the subject matter of the Kelly et al. reference logically would *not* have commended itself to an inventor's attention in considering his or her invention as a whole, and therefore, the Kelly et al. reference does not qualify as analogous art.

For at least the foregoing reasons, neither the Trask reference nor the Kelly et al. reference, either individually or in combination, teaches or suggests the subject matter defined by claims 21-24 and 26-34.

Applicant respectfully requests withdrawal of this rejection.

The Rejection over the Trask reference, the Kelly et al. reference, and the Shima et al. reference

Claim 25 is rejected under 35 U.S.C. § 103(a) as being unpatentable over the Trask reference, the Kelly et al. reference, and the Shima et al. reference.

Neither the Trask reference nor the Kelly et al. reference, either individually or in combination, teaches or suggests the features of independent claim 21, from which claim 25 depends. The Shima reference also does not make up for the deficiencies of these references, and indeed, is not relied upon for these features of claim 21.

Hence, claim 25 is patentable by virtue of its dependency from claim 21, as well as for the additional features recited therein. Applicant respectfully requests withdrawal of this rejection.

The Rejection over the Trask reference and the Pesko reference

Claims 35 and 36 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Trask reference in view of the Pesko reference. Applicant respectfully traverses this rejection.

Claims 35 and 36 are patentable by virtue of their dependency from claim 12, as well as for the additional features recited therein.

Additionally, Applicant respectfully submits that the Office Action may not rely upon the Pesko et al. reference under 35 U.S.C. § 103 because the Pesko et al. reference is non-analogous art. To qualify as analogous art, a reference must either be (1) within the field of Applicant's endeavor, or if not, (2) the subject matter logically would have commended itself to an inventor's attention in considering his or her invention as a whole. See M.P.E.P. § 2141.01(a)(I) citing *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1397 (2007).

Applicant respectfully submits that the Pesko et al. reference clearly is not within the field of Applicant's endeavor. In the present instance, the field of Applicant's endeavor is the field of home appliances and, more particularly, no-frost refrigeration devices for home appliances, NOT simply any climate control system. In stark contrast, the Pesko et al. reference is within the completely different and unrelated field of energy management systems for buildings, such as hotels, having a plurality of individually controlled spaces. See, e.g., col. 1, lines 6-9.

The field of endeavor of energy management systems for buildings having a plurality of individually controlled spaces clearly is different from the field of endeavor of no-frost refrigerators. Applicant respectfully submits that one of ordinary skill in the art would consider the field of home appliances and, more particularly, no-frost refrigeration devices for home appliances, to be in a completely different field of endeavor than energy management systems for buildings having a plurality of individually controlled spaces.

For at least the foregoing reasons, the Pesko et al. reference clearly is not within the field of Applicant's endeavor.

As set forth above, a reference that is not within the field of Applicant's endeavor may qualify as analogous art if the subject matter logically would have commended itself to an inventor's attention in considering his or her invention as a whole. See M.P.E.P. § 2141.01(a)(I) citing *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1397 (2007).

In the present instance, the subject matter of the Pesko et al. reference logically would *not* have commended itself to an inventor's attention in considering his or her invention as a whole. Properly considered as a whole, the present invention is directed to a no-frost refrigerator and method of controlling a no-frost refrigerator that controls de-humidification in the no-frost refrigeration device and reduces drying out of stored foodstuffs by the de-humidification. In stark contrast, the Pesko et al. reference very clearly is concerned with the completely unrelated problem of energy management systems for buildings having a plurality of individually controlled spaces.

The Pesko et al. reference discloses an energy management system for buildings, such as hotels, having a plurality of individually controlled spaces that takes into account time of day, day of week, month, season, ingress, egress, window opening/closing, change in status, occupancy state, ambient noise level, light level, energy consumption, temperature drift rate and direction, humidity, environment or weather, etc, in performing the control functions. See, e.g., col. 1, lines 48-58.

When properly considered as a whole, the subject matter of energy management systems for buildings having a plurality of individually controlled spaces logically would *not* have commended itself to an inventor's attention in considering, as a whole, ways to control de-humidification in a no-frost refrigeration device and reduce drying out of stored foodstuffs by the de-humidification. Moreover, the energy management systems for buildings having a plurality of individually controlled spaces of the Pesko et al. reference does not address any need or problem known in the field of no-frost refrigerators, and indeed, clearly would not have commended itself to the attention of the ordinarily skilled artisan looking to solve problems with controlling de-humidification in a no-frost refrigeration device and reducing drying out of stored foodstuffs by the de-humidification. Indeed, the Pesko et al. reference operates in a completely different manner from the present invention, and hence, teaches away from the claimed invention.

For at least these reasons, the subject matter of the Pesko et al. reference logically would *not* have commended itself to an inventor's attention in considering his or her

invention as a whole, and therefore, the Pesko et al. reference does not qualify as analogous art.

Moreover, even assuming in arguendo that the Pesko et al. reference is analogous art to the present invention, Applicant respectfully submits that one of ordinary skill in the art would not have had an apparent reason to combine the teachings of the Trask reference with the energy management systems for buildings having a plurality of individually controlled spaces of the Pesko reference to arrive at the claimed invention.

For at least the foregoing reasons, neither the Trask reference nor the Pesko et al. reference, either individually or in combination, teaches or suggests the subject matter defined by claims 35 and 36.

Applicant respectfully requests withdrawal of this rejection.

New Claim

New independent claim 37 is added. No new matter is added. None of the applied references discloses or suggests the subject matter defined by claim 37 for at least the same reasons as independent claim 12, as well as for the additional features recited therein.

Applicant respectfully requests allowance of this claim.

CONCLUSION

In view of the above, entry of the present Amendment and allowance of Claims 12-37 are respectfully requested. If the Examiner has any questions regarding this amendment, the Examiner is requested to contact the undersigned. If an extension of time for this paper is required, petition for extension is herewith made.

Respectfully submitted,

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